

REMARKS

Claims 1-29, 31-46 and 48-59 are currently pending in the present application. Favorable consideration and allowance of these claims are respectfully requested.

The Examiner is thanked for the courtesies extended during the interview held September 11, 2007, the substance of which is reflected herein.

The rejection of claims 1-17 under 35 U.S.C. § 102(b) over Murphy (5,716,720) is respectfully traversed.

Independent claims 1, 2, and 11 are amended to recite a component with a platinum-aluminum substrate surface region where “at least one of the platinum content and the aluminum content is essentially constant in a zone of the substrate surface region, and said zone comprises at least 20% of a region bounded on one side by the substrate surface or a point directly beneath the substrate surface, and bounded on the other side by a region depth at which the platinum content is 5 wt% or less, the aluminum content is 8 wt% or less, and the platinum content and the aluminum content remain below 5 wt% and 8 wt%, respectively, beyond the region depth.”

Claims 3-10 and 12-17 depend, either directly or indirectly, from claims 1, 2 or 11, and thus include this limitation.

Traditional methods of metal diffusion yield products with a progressively decreasing content for the diffused metal starting at the diffusion metal surface and continuing on in the direction of diffusion. The person of skill in the art would also appreciate, however, that a specific diffusion process might be used to achieve a zone having a constant metal content. For instance, the skilled artisan might achieve such a result by varying the diffusion conditions over the course of the diffusion process. In one such instance, by adjusting the content of the metal being diffused into a component over the course of the diffusion process, one could achieve a zone having a constant metal content over the diffusion zone.

Murphy does not teach a substrate surface region which is at the component surface and also meets the limitations of independent claims 1, 2 or 11. Instead, Murphy provides only for traditional diffusion processes, which yield a product with progressively decreasing content for the diffused metal. Moreover, Murphy provides an intermediate layer having an aluminum concentration of from about 18 to about 26 % by weight which actually teaches away from the claimed aluminum concentration of less than 18 weight percent.

Because the reference fails to teach each and every element of the claimed invention the rejection cannot be properly maintained and reconsideration and withdrawal thereof are respectfully requested.

The rejection of claims 1-3, 8-12, 16-18 and 22-24 under 35 U.S.C. § 102(b) over Rose et al. (5,482,578; 5,492,796; and 5,843,588) is respectfully traversed.

Claim 18, now recites the limitation described above relating to the zone have an essentially constant content for either aluminum or platinum, and the claims depending therefrom, namely claims 19-24, also include this limitation.

Thus, all of the rejected claims are now directed to a component having a zone with an essentially constant metal content. Just as with the Murphy reference, the Rose patents provide no teaching or suggestion as to the desirability, much less a description of how, one of skill in the art might arrive at a zone of constant metal content using a diffusion process.

Because the references fail to teach each and every element of the claimed invention the anticipation rejection cannot be properly maintained and reconsideration and withdrawal thereof are respectfully requested.

The rejection of claims 1-4, 8-13, 16-19 and 22-24 under 35 U.S.C. § 102(b) over Rickerby et al. (EP 0 718 419) is respectfully traversed.

Like the Murphy reference discussed above, Rickerby relates to a multi-layer coating system where an aluminum containing layer is underneath further

layers. Rickerby does not describe component having a zone with an essentially constant metal content as is recited in the present claims and described above. Further, Rickerby does not suggest the desirability of such an arrangement, nor does the reference describe how one might achieve such a zone having an essentially constant metal content.

Further, claim 23 is allowable because it recites the step of installing the component in an aircraft engine. Because Rickerby contemplates including additional layers over the surface of the component, Rickerby cannot anticipate the claimed step of installing, in an aircraft engine, the same component as is recited in the claim 23. In short, although Rickerby relates, in part, to a gas turbine engine turbine blade, Rickerby is generally directed to a thermal barrier coating for the turbine blade, and thus, the blade that Rickerby describes to be installed in the engine would have such a coating and be different from the blade to be installed in accordance with claim 23.

Accordingly the reference fails to teach each and every element of the claimed invention and the anticipation rejection cannot be properly maintained. Reconsideration and withdrawal thereof are respectfully requested.

The rejection of claims 1-4, 8-13 and 16-17 under 35 U.S.C. § 102(b) over Sangeeta (6,395,406) is respectfully traversed.

This reference teaches the use of various slurries to form a platinum aluminide coating. In particular, the reference describes the aluminum content of the first slurry and platinum content of a second slurry, *see*, col. 3, lines 38 – 40 and col. 4, lines 33 – 34. The reference does not, however, teach a desired metal content of the resulting coating. Further, the reference does not describe a component having a zone with an essentially constant metal content as recited in the present claims. Nor does Sangeeta suggest the desirability of such an arrangement, or how one might achieve such a zone having an essentially constant metal content.

As a result, the reference fails to teach a component having the features of the present claims and thus, fails to teach each and every element of the claimed invention. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

The remaining obviousness rejections, including the rejection of claims 18-24 and 52-59 and of claims 25-29, 31-46 and 48-51 under 35 U.S.C. § 103(a) over Murphy (5,716,720) in view of Sangeeta et al. (6,485,780), as well as that of claims 4-7, 13-15, 19-21, 25-29, 31-46 and 48-59 under 35 U.S.C. § 103(a) over Rose et al. (5,482,578; 5,492,796; and 5,843,588) in view of Murphy (5,716,720), and that of claims 5-7, 14-15, 20, 21, 25-29, 31-46 and 48-59 under 35 U.S.C. § 103(a) over Rickerby et al. (EP 0 718 419) in view of Rose et al. (5,482,578; 5,492,796; or 5,843,588) further in view of Murphy (5,716,720), and that of claims 1-6, 8-17, 18-29, 31-40, 42-46, 48 and 50-59 under 35 U.S.C. § 103(a) over Sangeeta (6,395,406) in view of Sangeeta et al. (6,485,780) and that of claims 7, 41 and 49 under 35 U.S.C. § 103(a) over Sangeeta (6,395,406) in view of Sangeeta et al. (6,485,780) in view of Rose et al. (5,482,578; 5,492,796; or 5,843,588) and further in view of Murphy (5,716,720) and finally, that of claims 1-29, 31-46 and 48-59 under 35 U.S.C. § 103(s) over Schaeffer (6,066,405) are all respectfully traversed.

At the outset, applicants wish to point out that claim 23 differs from the Murphy reference, in that Murphy, like Rickerby, is directed to a thermal barrier coating system, see, e.g., the title of Murphy. Thus, the turbine blade contemplated for use by Murphy differs from that of claim 23.

Moreover, all of the pending claims either recite, or are dependent from, a claim wherein at least one of the platinum content and the aluminum content is essentially constant in a zone of the substrate surface region of the component.

In contrast, none of the cited references disclose or even appear to contemplate such a component. Instead, the references provide only for traditional diffusion processes, which yield a product with progressively

decreasing content for the diffused metal. For instance, the Office Action indicates that Schaeffer teaches “that the platinum, aluminum and nickel concentrations in the coating region vary with the depth of the coating”, see page 15 of the recent Office Action. Accordingly, the references fail to address this element of the claims.

In certain instances, the Office Action concludes that a reference forms like materials in a like manner. This conclusion is based on a faulty premise because none of the references describe a diffusion process that would yield a component with a zone having an essentially constant content for the diffused metal. Not only do the references not describe such a component, they do not appear to indicate that it might be at all desirable to make such a components.

With respect to Schaeffer, the Office Action admits that the reference states that the coating contains at least 18 percent aluminum and at least 18 percent platinum. Applicants again respectfully submit that a skilled artisan would read this disclosure to teach away from any substrate surface region having a metal content of less than 18 percent for either of these metals. Stated another way, the reference actually discourages one of skill in the art from even trying to form a substrate surface region having a metal content of less than 18 percent for platinum or aluminum. Thus, the diffusion coating techniques of Schaeffer would never result in the same coating as is presently claimed, as one of skill in the art is discouraged from lowering the platinum and/or aluminum concentration as necessary to arrive at the presently claimed invention.

The Office Action asserts that one of skill in the art would try to optimize the metal content ranges and arrive at the claimed invention. One of skill in the art would not be inclined to “optimize” the metal compositions in a way that would disregard the teachings of the reference. While it may be reasonable to assume that one of skill in the art might optimize some variables within a given range, the cases related to optimization do not stand for the proposition that when a range is provided in some reference, persons of skill in the art will try to optimize the given variable outside of that range. This is especially true in the

present instance, where the reference very clearly states the lower useful limit of the metal compositions is above that presently claimed.

Despite that the reference does not disclose each and every limitation of the claimed invention, the Office Action asserts that the reference amounts to a *prima facie* showing of obviousness. This simply cannot be the case where the reference does not disclose or suggest each and every limitation of the present claims. The purported obviousness of the claimed invention over the disclosure of the reference is even less true when one considers the references consistent teachings that the metal content is always higher for platinum and aluminum than that presently claimed. Thus, the rejection based on Schaeffer should be withdrawn based on these additional reasons.

In sum, none of the cited references describe a component having a zone with an essentially constant metal content as recited in the present claims. On the present record, there is nothing to suggest the desirability of such an arrangement. Accordingly, the cited references fail to teach or suggest each and every claim element.

As a result, the proposed combinations of various references all fail to teach or describe a component or methods as recited in the present claims and thus, the proposed combinations of references fail to teach each and every element of the claimed invention. For the foregoing reasons the Office Action has failed to lay out a *prima facie* showing of obviousness and the obviousness rejection cannot, therefore, be properly maintained. Reconsideration and withdrawal of these rejections are respectfully requested.

CONCLUSION

In view of the foregoing, the application is respectfully submitted to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

If there are any questions regarding this response or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket No. 011235.53144US).

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Respectfully submitted,

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